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Markus Wuchse

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EXAMINER

CHEN, XIAOLIANG

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,563	Applicant(s) WUCHSE ET AL.	
	Examiner XIAOLIANG CHEN	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 34-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-29 and 31-33 is/are rejected.
- 7) ☒ Claim(s) 14 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02-17-06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I. Claims 1-33 drawn to an electronic device, classified in class 361, subclass 761.

Group II. Claims 34-51, drawn to a working process of the electronic device, classified in class 29, subclass 832.

2. Inventions Group II and Group I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product can be made by a different method, for example, the thin film assembly of product claim can be made by different ways or in different orders than the contact layer is applied on the base electrode by thin-film technology prior to attaching the remaining thin-film component, the conductor layer is smoothed by a mechanical method such as, e.g., lapping, grinding or polishing, the conductor layer is smoothed by electrochemical polishing, etc., as in the method claims.

3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction were not

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required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with the Practitioner, Ms. Janet Cord on 07-30-2008 a provisional election was made with traverse to prosecute the invention of the Group I, the electronic devices, Claims 1-33. Affirmation of this election must be made by applicant in replying to this Office action. Claims 34-51 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 5, 8-9, and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Izumi (US20020123176).

Re claim 1, Izumi shows and discloses

A thin-film assembly including a substrate (81, fig. 6) and at least one electronic thin-film component (80, fig. 6) applied on the substrate by thin-film technology, wherein a base electrode (83, fig. 6) is provided on the substrate, on which base electrode thin-film layers (thin film [0074]) forming part of the thin-film component are arranged together with an upper top electrode (87, fig. 6), characterized in that the substrate is comprised of a printed circuit board (81, fig. 6) including an insulation-material base body (81, fig. 6) and a metal coating as the conductor layer (82, fig. 6), that the conductor layer forms the base electrode (83, fig. 1) and, to this end, is smoothed (smooth surface [0109]) at least on the location of the thin-film component, and that a contact layer (86, fig. 6) in thin fill technology is provided between the smoothed, optionally reinforced, conductor layer and the superimposed thin-film layers of the thin-film component (fig. 6), which contact layer is physically or chemically adsorbed on the surface of the base electrode (fig. 6).

Re claim 5, Izumi shows and discloses

A thin-film assembly according to claim 1, characterized in that a contact layer is also provided below the top electrode (fig. 6).

Re claim 8, Izumi shows and discloses

A thin-film assembly according to claim 1, characterized in that the contact layer is a metallic layer (Si [0155]) made, e.g., of aluminum, gold, palladium platinum or a metal alloy, or carbon, or a semi-conductive compound.

Re claim 9, Izumi shows and discloses

A thin-film assembly according to claim 1, characterized in that the contact layer is formed by a conductive suspension or solution, e.g., based on polyaniline, polyethylene dioxithiophene/polystyrenesulfonic acid. (With respect to “the contact layer is formed by a conductive suspension or solution” which is a process limitation. The process limitation does not carry weight in a claim drawn to structure or device. When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See MPEP § 2113.)

Re claim 12, Izumi shows and discloses

A thin-film assembly according to claim 1, characterized in that the top electrode and, optionally, also the contact layer provided therebelow are designed to be at least translucent and, preferably, transparent (transparent conductive oxide film [0085]).

Re claim 13, Izumi shows and discloses

A thin-film assembly according to claim 12, characterized in that an electroluminescent device (a transparent type liquid crystal display device [0068]) is provided as said thin-film component.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-3 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Yoshimura et al. (US6845184).

Re claims 2-3, Izumi shows and discloses

A thin-film assembly according to claim 1,

Izumi does not disclose

via connections are provided in the printed circuit board for the electronic contacting of the electrodes through the base body of the printed circuit board; a feed through to the base electrode is provided in the printed circuit board directly below the base electrode.

Yoshimura et al. teaches a device wherein

via connections (via connections between the electrode 27 and the connect pad 32, fig. 4-3) are provided in the printed circuit board for the electronic contacting of the electrodes through the base body of the printed circuit board (fig. 4-3); a feed through (via between the electrode 27 and the connect pad 32, fig. 4-3) to the base electrode is provided in the printed circuit board directly below the base electrode (fig. 4-3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the via as taught by Yoshimura et al. in the electronic device of Izumi, in order to connecting the electrodes in side the circuit board to the interconnection pads out side the circuit board, and for

easily connecting the electronic device with other outside electronic device.

(Yoshimura et al., col. 19, line 60)

Re claims 6-7, Izumi shows and discloses

A thin-film assembly according to claim 1,

Izumi does not disclose

the contact layer also constitutes a passivation layer for the electrode; the contact layer also constitutes a stabilization layer for the adherence between the electrode and the adjacent thin-film layer.

Yoshimura et al. teaches a device wherein

the contact layer also constitutes a passivation layer (passivation layer [col. 31, line 49]) for the electrode; the contact layer also constitutes a stabilization layer (a thin chromium adhesion layer [col. 15, line 13]) for the adherence between the electrode and the adjacent thin-film layer.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the passivation layer and the adhesion layer as taught by Yoshimura et al. in the electronic device of Izumi, in order to get better insulation between conductive layers and make the film hold tightly on to the board.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Abe (US20030218153).

Re claim 4, Izumi shows and discloses

A thin-film assembly according to claim 1,

Izumi does not disclose

the smoothed conductor layer, over surface areas having the dimensions of $20 \times 20 \mu\text{m}^2$ (micro-roughness), exhibits a maximum mean surface roughness of 10 nm and, preferably, 3 nm. (surface roughness (Ra) of 2.5nm or less [0036])

Abe teaches a device wherein

the smoothed conductor layer, over surface areas having the dimensions of $20 \times 20 \mu\text{m}^2$ (micro-roughness), exhibits a maximum mean surface roughness of 10 nm and, preferably, 3 nm. (surface roughness (Ra) of 2.5nm or less [0036])

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the smooth surface as taught by Abe in the electronic device of Izumi, in order to have a high transmittance in the low-wavelength region of visible rays. (Abe, paragraph [0002])

11. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Lin et al. (US20020109796).

Re claims 10-11, Izumi shows and discloses

A thin-film assembly according to claim 1,

Izumi does not disclose

a thin-film passivation layer is applied on exposed base body zones uncovered from the conductor layer, said passivation layer preventing the contamination of the respective thin-film component by substances emerging from the base body; passivation layer is made of silicon dioxide, a sol-gel system or an epoxy compound.

Lin et al. teaches a device wherein

a thin-film passivation layer (thin film, passivation layer [Abstract]) is applied on exposed base body zones uncovered from the conductor layer (fig. 2), said passivation layer preventing the contamination of the respective thin-film component by substances emerging from the base body; passivation layer is made of silicon dioxide, a sol-gel system or an epoxy compound (passivation layer formed of transparent epoxy [0021]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the a thin-film passivation layer as taught by Lin et al. in the electronic device of Izumi, in order to get better insulation between conductive layers of the electronic device.

12. Claims 15-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Speakman (US20030076649).

Re claims 15-23, Izumi shows and discloses

A thin-film assembly according to claims 1 and 12 respectively,

Izumi does not disclose

a light-emitting diode, photovoltaic assembly, an optical sensor or a temperature sensor, a diode, a field-effect transistor, a resistor and/or a capacitor, a snubber, and a translucent or transparent encapsulation are provided as said thin-film component.

Speakman teaches a device wherein

a light-emitting diode (light-emitting diode [0277]), photovoltaic assembly (photovoltaic structure [0102]), an optical sensor or a temperature sensor (optical sensor ([0092]), a diode (diode [0277]), a field-effect transistor (field-effect transistor [0076]), a resistor and/or a capacitor (a resistor and a capacitor [0201]), a snubber (protective barrier [0096]), and a translucent or transparent (optically transmissive, transparent, or translucent [0388]) encapsulation (encapsulation [0027]) are provided as said thin-film component.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the all the elements as taught by Speakman in the electronic device of Izumi, since Speakman states in [0038], [0054], [0055], [0077], [0083], [0084], [0093], [0104], and [0239] that these elements could used in a thin film assembly in order to meet different needs of the electronic device.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Speakman as applied to claims 22 above, further in view of Ross (US5830529).

Re claim 24, Izumi and Speakman disclose

A thin-film assembly according to claim 22,

Izumi and Speakman do not disclose

an enclosed gas volume is present within said encapsulation.

Ross teaches a device wherein

an enclosed gas volume (gas chamber [col. 31, line 48]) is present within said encapsulation.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the all the elements as taught by Ross in the electronic device of Izumi, since Ross states in [col. 31, line 47], that allowing adhesion at the contact point, the gas chamber becomes sealed and if the upper coating were transparent, it would be possible to see into, or through, that cavity.

14. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of Speakman as applied to claims 23 above, further in view of Komoto et al. (US6674097).

Re claim 25, Izumi and Speakman disclose

A thin-film assembly according to claim 23,

Izumi and Speakman do not disclose

said encapsulation carries color converting and/or index matching layers in alignment with the local base electrodes.

Komoto et al. teaches a device wherein

said encapsulation carries color converting (converter [col. 53, line 51]) and/or index matching (for lattice matching [col. 69, line 9]) layers in alignment with the local base electrodes.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the color converter and lattice matching as taught by Komoto et al. in the electronic device of Izumi, in order to improve the color of the display device.

15. Claims 26-27 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of O'Bryan et al. (US6638378).

Re claims 26-27 and 33, Izumi shows and discloses

A thin-film assembly according to claims 1 and 26 respectively,

Izumi does not disclose

the printed circuit board is a flexible printed circuit board known per se;
the thin-film component has a flexible structure; and characterized by a
configuration as a roll-up or folding sheeting material.

O'Bryan et al. teaches a device wherein

the printed circuit board is a flexible printed circuit board known per se;
the thin-film component has a flexible structure; and characterized by a
configuration as a roll-up or folding sheeting material. (embedded or integrated
as a component of a circuit, for example, in a PWB or a flexible circuit [col. 3, line
56]).

Therefore, it would have been obvious to one having ordinary skill in the
art at the time the invention was made to use the flexible thin-film component
with the flexible printed circuit board as taught by O'Bryan et al. in the electronic
device of Izumi, in order to be able to make a flexible electronic device.

16. Claims 28-29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of O'Bryan et al. as applied to claim 26 above, further in view of Ottermann et al. (US7268486).

Re claims 28-29 and 31, Izumi shows and discloses

A thin-film assembly according to claim 26, the thin-film component and the flexible printed circuit board,

Izumi and O'Bryan et al. do not disclose

an encapsulation is associated with said thin-film component, said encapsulation is flexible, consisting, e.g., of a thin glass laminate or a polymer-oxide composite layer system; said encapsulation is attached to the thin-film component via an adhesion-promoting layer; the thin-film component is provided in the neutral plane between the flexible printed circuit board and the flexible encapsulation.

Ottermann et al. teaches a device wherein

an encapsulation (encapsulation [col. 1, line 59]) is associated with said thin-film component, said encapsulation is flexible (the encapsulation of extremely thin or flexible components [col. 1, line 59]), consisting, e.g., of a thin glass laminate or a polymer-oxide composite layer system (glass layer [claim 1]); said encapsulation is attached to the thin-film component via an adhesion-promoting layer (adhesive bonding 25 [Table-US-00002]); the thin-film component is provided in the neutral plane between the flexible printed circuit board and the flexible encapsulation (fig. 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the a flexible encapsulation and adhesive bonding as taught by Ottermann et al. in the electronic device of Izumi, in order to be able to make a flexible electronic device.

17. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumi in view of O'Bryan et al. as applied to claim 26 above, further in view of Takase et al. (US5463229).

Re claim 32, Izumi and O'Bryan et al. disclose

A thin-film assembly according to claim 26,

Izumi and O'Bryan et al. do not disclose

the flexible printed circuit board is transparent or translucent.

Takase et al. teaches a device wherein

the flexible printed circuit board is transparent or translucent (a flexible transparent substrate [Abstract]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the a flexible transparent printed circuit board as taught by Takase et al. in the electronic device of Izumi, since Takase states in [Abstract], in order to be able to let the light transmitted through the flexible transparent substrate and come in and/or go out of the optical device.

Allowable Subject Matter

18. **Claims 14 and 30 are objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:
Claims 14 and 30 and all claims dependent thereof are allowable over the art of record because the prior art does not teach or suggest that a removable storage device,

For claim 14; that local base electrodes having individual feed throughs are provided on the printed circuit board within an insulating grid structure, with a planar electroluminescent thin-film system as well as a planar, or strip-wisely or symbol-wisely patterned, top electrode being arranged thereabove.

For claim 30; that said encapsulation, via a passivation layer serving as a barrier layer against moisture and air, is provided above the thin-film component, optionally above the adhesion-promoting layer.

The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said claims 14 and 30 and all claims dependent thereof patentable over art of record.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6891194 US 6910812 US 7278326.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAOLIANG CHEN whose telephone number is (571)272-9079. The examiner can normally be reached on 7:00-5:00 (EST), Monday-Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800, ext 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dean A. Reichard/
Supervisory Patent Examiner, Art Unit 2841

Xiaoliang Chen
Examiner
Art Unit 2841